

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A method for detecting an abnormality of an optical module, wherein the method comprises:

detecting a first value of a current flowing through a specified spot of the optical module;

~~storing the detected value of the current in a memory;~~

subsequently detecting a value of a current flowing through the specified spot at each of a plurality of every-predetermined times subsequent to the detecting of said first value of the current;

obtaining a differential value between the value of ~~the~~ a current detected at a predetermined time recently stored in the memory and the value of ~~the newly detected a current detected at a preceding, predetermined time~~ and storing the newly detected current in the memory; and

generating alarm signal when the obtained differential value exceeds a predetermined threshold value.

2. (Cancelled).

3. (Previously Amended) The method for detecting an abnormality of an optical module according to claim 1, wherein the first and other values of the current flowing through the specified spot is a monitor current detected by a current detector.

4. (Cancelled).

5. (Previously Presented) The method for detecting an abnormality of an optical module according to claim 1, wherein the first value of the current ~~held in the memory~~ is a value of a current flowing through the specified spot at the start time of the use of the optical module.

6. (Original) The method for detecting an abnormality of an optical module according to claim 1, wherein the value of a current detected at a preceding predetermined time ~~the value of the current held in the memory~~ is overwritten to the value of current detected at a subsequent predetermined time ~~the value of the current which is newly detected in the specified spot when a differential value is obtained~~.

7. (Previously Amended) The method for detecting an abnormality of an optical module according to claim 1, wherein the detected other values of the current flowing through the specified spot ~~are~~ is an average values of currents for the predetermined time.

8. (Currently Amended) A method for detecting an abnormality of an optical module, wherein the method comprises:

detecting a first value of a current flowing through a specified spot of the optical module;
~~storing the detected value of the current in a memory;~~
subsequently newly-detecting a value of a current flowing through the specified spot at each of a plurality of ~~every~~ predetermined times subsequent to the detecting of said first value of the current;

obtaining a ratio of a differential value between the value of ~~the~~ a current detected at a predetermined time~~recently stored in the memory~~ and the value of ~~the newly detected current detected at a preceding predetermined time~~ to the value of the current held in the memory, and ~~storing the newly detected current in the memory;~~ and

generating alarm signal when the obtained ratio exceeds a predetermined threshold value.

9. (Currently Amended) An apparatus for detecting an abnormality of an optical module comprising:

a current detector which detects a first value of a current flowing through a specified spot of said optical module, and subsequently detects a value of a current flowing through the specified spot at each of a plurality of ~~at every~~ predetermined times subsequent to the detecting of said first value of the current;

~~a memory which stores the value of the current detected by said current detector;~~

an arithmetic circuit which obtains a differential value between the value of a ~~the~~ current detected at a predetermined time ~~recently stored in said memory~~ and the ~~a~~ value of a current newly detected at a preceding predetermined time ~~by said current detector~~; and

an alarm circuit which generates alarm signal when the differential value obtained by said arithmetic circuit exceeds a predetermined threshold value, ~~wherein the newly detected current value is stored in the memory.~~

10-11. (Cancelled).

12. (Original) The apparatus for detecting an abnormality of an optical module according to claim 9, wherein the first value of the current ~~held in said memory~~ is a value of a current flowing through the specified spot, ~~the value of the current being detected by said current detector~~ at the start time of the use of said optical module.

13. (canceled).

14. (Original) The apparatus for detecting an abnormality of an optical module according to claim 9, further comprising:

a memory which stores a value of the current detected by said current detector;

wherein said memory includes a first memory and a second memory,

said first memory receives and holds a value of a current from said current detector, and sends out the value of the current held until then to said second memory,

said second memory holds the value of the current sent from said first memory, and

said arithmetic circuit obtains a differential value between the values of the currents held in said first memory and said second memory.

15. (Original) The apparatus for detecting an abnormality of an optical module according to claim 9, wherein said current detector detects an average value of currents flowing ~~though~~ through the specified spot for a predetermined time as ~~a~~an other value of ~~a~~ current.

16. (Currently Amended) An apparatus for detecting an abnormality of an optical module comprising:

a current detector which detects a first value of a current flowing through a specified spot of said optical module, said current detector subsequently detecting a value of a current flowing through the specified spot at each of a plurality of ~~at every~~ predetermined times subsequent to the detecting of said first value of the current;

~~a memory which stores the value of the current detected by said current detector;~~

an arithmetic means which obtains a ratio of a differential value between the current value detected at a predetermined time ~~recently stored in said memory~~ and the ~~a~~ value of a current ~~newly detected~~ at a preceding predetermined time by said current detector to the value of current at predetermined time; and

alarming means which generates alarm signal when the ratio obtained by said arithmetic means exceeds a predetermined threshold value, ~~wherein the newly detected current is stored in the memory.~~

17. (New) The method for detecting an abnormality of an optical module according to claim 1, further comprising:

obtaining a ratio of said differential value to said value of current detected at the immediately preceding predetermined time; and

generating an alarm signal when said ratio exceeds a predetermined threshold value.

18. (New) A method for detecting an abnormality of an optical module, wherein the method comprises:

detecting a first value of current flowing through a specified spot of the optical module at a first time;

subsequently detecting a value of a current flowing through the specified spot at a second time later than said first time;

obtaining a differential value between the value of a current detected at said first time and a value of a current at said second time; and

generating an alarm signal when the obtained differential value exceeds a predetermined threshold value.

19. (New) A method for detecting an abnormality of an optical module, wherein the method comprises:

detecting a first value of current flowing through a monitor detecting an output from a laser;

subsequently detecting a value of a current flowing through the monitor at each of a plurality of predetermined times subsequent to the detecting of said first value of current;

obtaining a differential value between the value of a current detected at a predetermined time and the value of current detected at a preceding predetermined time; and

generating an alarm signal when the obtained differential value exceeds a predetermined threshold value.

20. (New) The apparatus for detecting an abnormality of an optical module according to claim 9,

wherein said arithmetic circuit obtains a ratio of said differential value to a value of current detected at the immediately preceding predetermined time; and

said alarm circuit which generates an alarm signal when said ratio exceeds a predetermined threshold value.

21. (New) The apparatus for detecting an abnormality of an optical module, comprising:

a current detector which detects a first value of current flowing through a specified spot of the optical module at a first time, said current detector subsequently detecting a value of a current flowing through the specified spot at a second time later than said first time;

an arithmetic circuit which obtains a differential value between the value of a current detected at said first time and a value of a current at said second time; and

an alarm circuit which generates an alarm signal when the obtained differential value exceeds a predetermined threshold value.

22. (New) The apparatus for detecting an abnormality of an optical module, comprising:

a current detector that detects a first value of current flowing through a monitor detecting an output from a laser, said current detector subsequently detecting a value of a current flowing through the monitor at each of a plurality of predetermined times subsequent to the detecting of said first value of current;

an arithmetic circuit which obtains a differential value between the value of a current detected at a predetermined time and the value of current detected at a preceding predetermined time; and

an alarm circuit which generates an alarm signal when the obtained differential value exceeds a predetermined threshold value.